Assessing Vertebrate Abundance, Behavior, and Impact on a Living Shoreline Through Wildlife Camera Analysis

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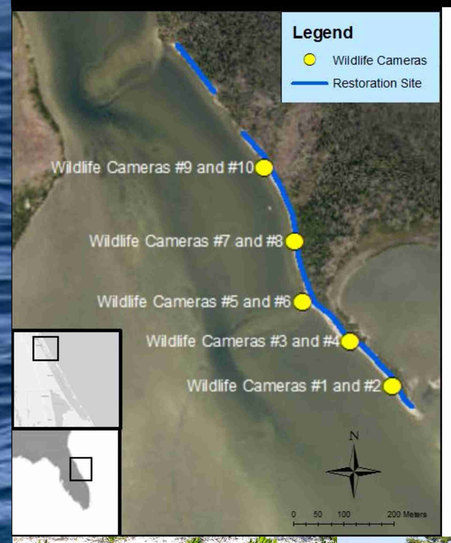
Background

- Living shorelines are a stabilization technique which utilizes plants and other natural elements to stabilize estuarine coasts, prevent erosion, and encourage habitat growth.
- Research has provided minimal information about which animals utilize living shorelines and animal behavior on living shorelines.
- To protect stabilization efforts, we need to know how resident vertebrate species utilize their environment and if they consume or damage deployed materials.

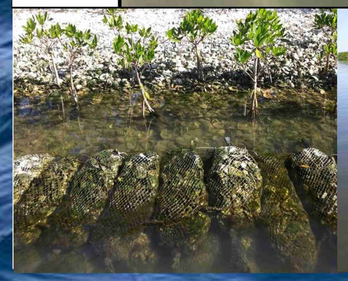
Objectives

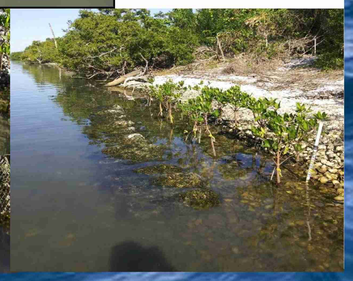
- Determine which vertebrates utilize a mangrove living shoreline site.
- Document vertebrate species behavior on a living shoreline.
- Determine if any vertebrate species impact the living shoreline materials.

Study Site: Canaveral National Seashore



Eastern oyster (*Crassostrea virginica)* shell bags and red mangroves (*Rhizophora mangle)* were used to restore 680 m of shoreline in Mosquito Lagoon.





Methods

- 10 cameras were placed at 5 locations on a living shoreline.
- At each location, 1 camera captured shoreline and 1 captured 5 m landward of shoreline.
- Cameras deployed 5 days per month (Sept. 2019-March 2020).
- Cameras captured 10 s videos when activated by motion during day and night.
- Individuals passing camera more than once within 10 min were counted as the same individual.

Results: Vertebrate Abundance

Wading Birds

Scientific Name	Common Name	# of Observations
Pelecanus erythrorhynchos	American white pelican	3
Columbina passerina	Common ground dove	18
Phalacrocorax auritus	Double-crested cormorant	9
Ardea herodias	Great blue heron	36
Ardea alba	Great white egret	4
Egretta caerulea	Little blue heron	25
Nycticorax spp.	Night heron	7
Arenaria interpres	Ruddy turnstone	17
Egretta thula	Snowy egret	1
Actitis macularius	Spotted sandpiper	24
Egretta tricolor	Tricolored heron	19
Cathartes aura	Turkey vulture	10
Calidris mauri	Western sandpiper	6
Tringa semipalmata	Willet	5
Eudocimus albus	American white ibis	1

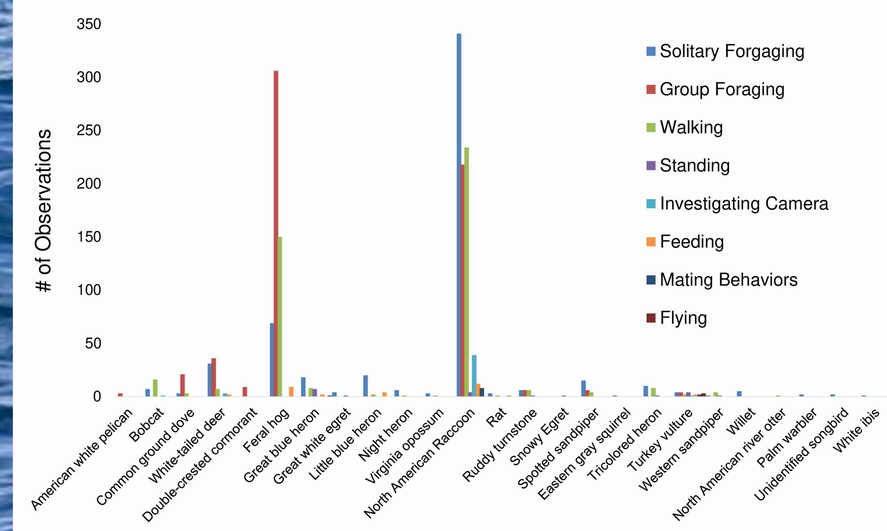
Mammals

Scientific Name	Common Name	# of Observations
Lynx rufus	Bobcat	23
Odocoileus virginianus	White-tailed deer	63
Sus scrofa	Feral hog	523
Didelphis virginiana	Virginia opossum	4
Procyon lotor	North American raccoon	799
Raitus spp.	Rat	5
Sciurus carolinensis	Eastern gray squirrel	1
Lontra canadensis	North American river otter	1

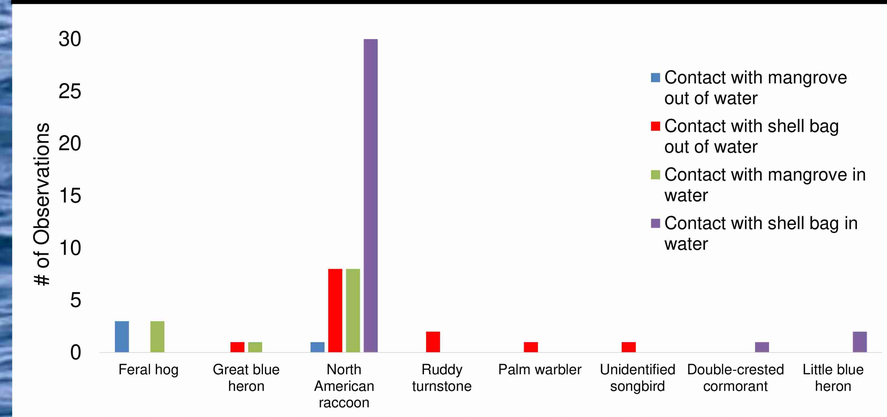
Songbirds

Scientific Name	Common Name	# of Observations
Setophaga palmarum	Palm warbler	2
Passeri spp.	Unidentified songbird	2
	Total Observations	**1,608**

Results: Vertebrate Behaviors



Results: Vertebrate Contact with Stabilization Materials



Discussion

- Living shorelines provide habitat and foraging opportunities for a diverse range of vertebrates at the shoreline and the upland vegetation.
- Vertebrates only contacted the stabilization materials while foraging or walking in the water.
- No living shoreline materials were consumed or dislodged, indicating no negative impact on stabilization efforts.

Acknowledgements

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